

Massachusetts Office of Technical Assistance and Technology



What You Should Know About Installing On-site Renewable Energy for Your Massachusetts Business



An increasing number of businesses in the Commonwealth are taking an interest in renewable energy. Reasons include wanting to cut energy costs, reduce dependence on fossil fuels, minimize greenhouse gas emissions, stay competitive, and be a responsible neighbor within their community. The Office of Technical Assistance and Technology (OTA) is committed to helping businesses achieve these goals. This fact sheet addresses some of the most common questions regarding renewable energy in Massachusetts.

State Funding

Funding for renewable energy projects in Massachusetts comes mostly from the Renewable Energy Trust (RET). The RET funds a variety of electricity generation projects across the Commonwealth. Projects that are >10kW are currently funded twice a year on a competitive basis by their Large Onsite Renewables Initiative¹, and those with projects <10kW can apply on a non-competitive, rolling basis for rebates from the Small Renewables program². There are also a number of state tax incentives³ available from Massachusetts that are not limited to projects producing electricity. Finally, some of the larger utility companies^{4,5} offer funding for solar thermal projects.



Photo Courtesy MassEnergy

Fresh Hair Solar Hot Water

Federal Funding

Tax incentives³, grants, and loans are also available from the federal government for renewable energy projects. A combination of tax credits and accelerated depreciation can fund significant portions of some types of renewables projects (such as solar) and are a common source of funding. In addition, companies meeting the definition of a small, rural business are eligible for grants and guaranteed loans from the USDA⁶ for most types of renewable energy projects. All federal funding is subject to periodic reappropriations or expiration; therefore, future funding could be expanded or possibly reduced or eliminated.

Production-Based Funding

A renewable energy system can provide energy, while reducing expenses for electricity or fuel, and it can be an additional source of revenue. Renewable energy certificates, net metering, the ISO forward capacity market, and the federal renewable electricity production tax credit are on-going sources of money that businesses may be able to receive for producing renewable energy.



Photo Courtesy Jimmy Peak

Jimmy Peak Wind Turbine

Energy efficiency measures should always precede any renewable energy project. Energy efficiency is often a prerequisite for renewable energy funding, can result in a scale of purchased energy savings comparable to renewable energy, and often has a payback of 2 years or less. In contrast, even the best renewable energy project is likely to have at least a 4-5 year payback after funding incentives. For those businesses not wanting to incur these capital costs, a number of companies offer third party ownership of equipment. Most commonly this is done for very large photovoltaic (PV) systems.

A 2006 OTA survey of business owners/management with renewable energy systems found the following: paybacks were 5-10 years; management support was critical to project success; project installation timelines were generally longer than expected; and every business representative interviewed said if they had it to do over again, they would.

The keys to successful renewable energy projects are top-level management commitment and appropriately selecting a renewable energy technology based on your area's natural resources and your business's demand for energy. The following gives some points to consider when evaluating some of the main renewable technologies in Massachusetts.

"Jiminy Peak's wind turbine helps our company stay ahead of our competition by providing safe, stable, and consistent renewable energy".
- Jim Van Dyke, Jiminy Peak, 1.5 MW wind

Wind

Where sufficient wind resources exist⁷, wind turbines can have among the best payback of any renewable energy source and have the potential to produce very large amounts of electricity. Ideal locations have average wind speeds of at least 6.5 m/s (14.5mph), 24/7 operations, and are not in close proximity to an airport. There should also be enough land area so that the turbine is a sufficient distance from buildings, property lines, and residences. Note that permitting issues vary significantly and can impact the ability to install wind turbines.

Solar

Solar energy can be used to produce electricity, heat, or hot water. As solar energy is a relatively diffuse resource, these systems have the potential to take up a considerable amount of space. Ideal locations have high energy use (or charges) around mid-day, particularly in summer. They also have large amounts of low-cost, structurally sound, obstruction-free space that will allow panels to receive direct sunlight between 9am and 4pm with little to no shading. Usually this is a flat or south-facing rooftop that will not need replacement soon or that will be replaced in conjunction with the solar installation.

"Alternative energy solutions offer valuable economic and environmental benefits to small and large companies alike."
- Dean Cycon, Dean's Beans Organic Coffee Co., 10 kW solar (PV)



Photo Courtesy of Bixby Intl. Corp.

Biomass and Biofuels

Biomass (e.g., wood) and biofuels can be good energy sources for businesses with significant heating needs. Businesses that already produce biobased waste streams can most directly benefit, though these fuels are also readily procured throughout the Commonwealth. Biobased projects require significant space for equipment and fuel. Biomass and biofuels can be used for combined heat and power, often improving system economics and environmental benefits and enabling RET funding.

Bixby Intl. Corp. Solar (PV)

Small Hydroelectric

Businesses that own an existing dam at their facility may benefit from on-site hydroelectric generation. Dam owners are already required to properly maintain dams. Therefore, adding, refurbishing, or upgrading a hydroelectric system in conjunction with repair work is ideal. Exact energy production is based on the dam water flow rate, which can be seasonal, and height, but a few hundred kilowatts is typical. Installing on-site hydroelectric generation requires approval from the Federal Energy Regulatory Commission (FERC), which can be a lengthy process unless FERC's advice for expediting the process⁸ is followed.

References

1. http://www.masstech.org/RenewableEnergy/large_renewables.htm
2. http://www.masstech.org/RenewableEnergy/small_renewables.htm
3. <http://www.dsireusa.org>
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6. <http://www.rurdev.usda.gov/rbs/farbill>
7. <http://truewind.teamcamelot.com/ne>
8. <http://www.ferc.gov/industries/hydropower/gen-info/licensing/small-low-impact.asp>



Photo Courtesy Riverdale Mills

Riverdale Mills Hydropower

The Office of Technical Assistance and Technology (OTA) provides a range of non-regulatory assistance services to help businesses cut costs, improve chemical use efficiency, and reduce environmental impact in Massachusetts. For further information about renewable energy or about OTA's technical assistance services, contact:

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